inducible clindamycin resistance in clinical staphylococcal isolates with reduced vancomycin susceptibility in a University Teaching Hospital

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Background: The chemotherapy of staphylococcal infections has been complicated by evolution of multidrug resistant strains, especially the methicillin-resistant *Staphylococcus aureus* (MRSA) now treated with various groups of antimicrobial agents, including, the glycopeptides (vancomycin); and the macrolides, lincosamides and streptogramin B (MLSB) class of antibiotics. The risk of clinical failure during therapy is increasingly being reported while therapeutic failures due to MLSB-inducible resistance (MLSB-i) is becoming more frequent. The study determined prevalence of inducible *erm*-mediated clindamycin resistance (MLSB-i) in clinical staphylococcal isolates with reduced vancomycin susceptibility in a University Teaching Hospital was determined.

Methods: Suspected staphylococcal isolates from specimen submitted to the Medical Microbiology laboratory were screened for vancomycin resistance on vancomycin-agar screening plates; Brain Heart agar supplemented with 6!g/ml vancomycin (BHI-V6); Mannitol Salt agar supplemented with 4 !g/ml vancomycin (MSA-V4) and confirmed by E-test. All isolates with vancomycin MIC of 1.5 to 2 were tested for MLSB-i by the double-disc diffusion, D-test using erythromycin (ER, 15!g) and clindamycin (CL, 2 !g) discs placed 15mm-18 mm apart on Muller-Hinton agar plates inoculated with the test organism.

Results: A total of 43/195 (22.1%) grew on BHI-V6 within 24hrs while 66/195 (33.8%) grew on MSA-V4 in 24—48 hrs of incubation. However, only 36 isolates had vancomycin MIC of between 1.5 to 2.0. Only 41.6% (15/36) of the isolates gave a positive D-test indicative of MLSB-i.

Conclusion: This is of clinical importance because MLSB-i *S. aureus* undergo spontaneous mutation to constitutive clindamycin resistance at high rate and with potential to develop resistance during treatment. Routine testing of staphylococcal isolates for inducible clindamycin resistance is recommended in the 2006 CLSI guidelines and help to chose treatment failures especially for patients infected with inducible MLSB isolates as in our hospital.

doi:10.1016/j.ijid.2010.02.393

74.014

Different antibiotic treatments in patients suffering from MRSA-mediastinitis after cardiac surgery

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Background: Methicillin-resistant Staphylococcus aureus (MRSA) poststernotomy mediastinitis is a rare but serious different antibiotic therapies, after similar aggressive surgical treatment was performed.

Methods: Between January 2005 and August 2008, 37 patients suffered postoperative from MRSA-mediastinitis. The mean age was 70.6 ± 6.5 years, median logistic EuroSCORE was 27.0% (range 5.3 to 62.9%). In all patient's samples Vancomycin MIC was <1.0 μg/mL. There were 3 groups initiated, Vancomycin 2 g/d (group 1;*n* = 15), Daptomycin 6 mg/kg (group 2; *n* = 11) and Linezolid 1200 mg/d (group 3;*n* = 11). The pre-operative risk scores for surgical site infection were measured in all patients. End-points were morbidity and mortality.

Results: The total mortality was 13.5% (5/37 pts). Results are shown in table1. There was a significant lower rate of acute renal failure by using Daptomycin compared to Vancomycin (*$p = 0.016$). Antibiotic therapy was changed in five patients of group 1 due to therapy failuire. In group 2, antibiotic therapy was deescalated in one patient and one patient was switched in oral therapy. In group 3, therapy was changed due to thrombocytopenia in two patients and in one patient due to therapy failure. There was a trend of lower mortality in group 2 compared to group 1 and 3, however this was not statistical significant.

	Group 1 (*n* = 15)	Group 2 (*n* = 11)	Group 3 *n* = 11)
acute renal failure	46.7%	0%*	27.3%
dialysis	20.0%	0%	27.3%
therapy change	33.3%	18.2%	27.3%
mortality	26.7%	0%	9.1%

Conclusion: Daptomycin decrease significantly acute renal failure compared to Vancomycin therapy in patients suffering from MRSA-mediastinitis. Furthermore there is a positive trend seen by using Daptomycin in MRSA-mediastinitis, however future studies with larger patient's numbers are needed to confirm this.

doi:10.1016/j.ijid.2010.02.394

74.015

Trends in Methicillin resistant staphylococcus aureus (MRSA) minimal inhibitory concentration (MIC) to Vancomycin over a 2 year period in a community based hospital

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Background: Clinical and laboratory standards institute (CLSI) susceptible range for MRSA isolates to Vancomycin is established at MIC of 2mcg/ml or less, however MRSA isolates with higher MIC within the susceptible range are being reported more frequently. It has been reported that the clinical response to therapy with vancomycin for patients infected with MRSA isolates with MIC's ≥ 1.5 to 2 mcg/ml is decreased.

The objectives of the present study were to determine the MIC to Vancomycin of MRSA blood isolates over